

NOTES ON GEOGRAPHIC DISTRIBUTION

**Orthoptera, Acrididae, Melanoplinae, Dichroplini: *Dichroplus intermedius* Ronderos 1976:  
New occurrence in Argentina, Distrito de los Campos, Misiones**

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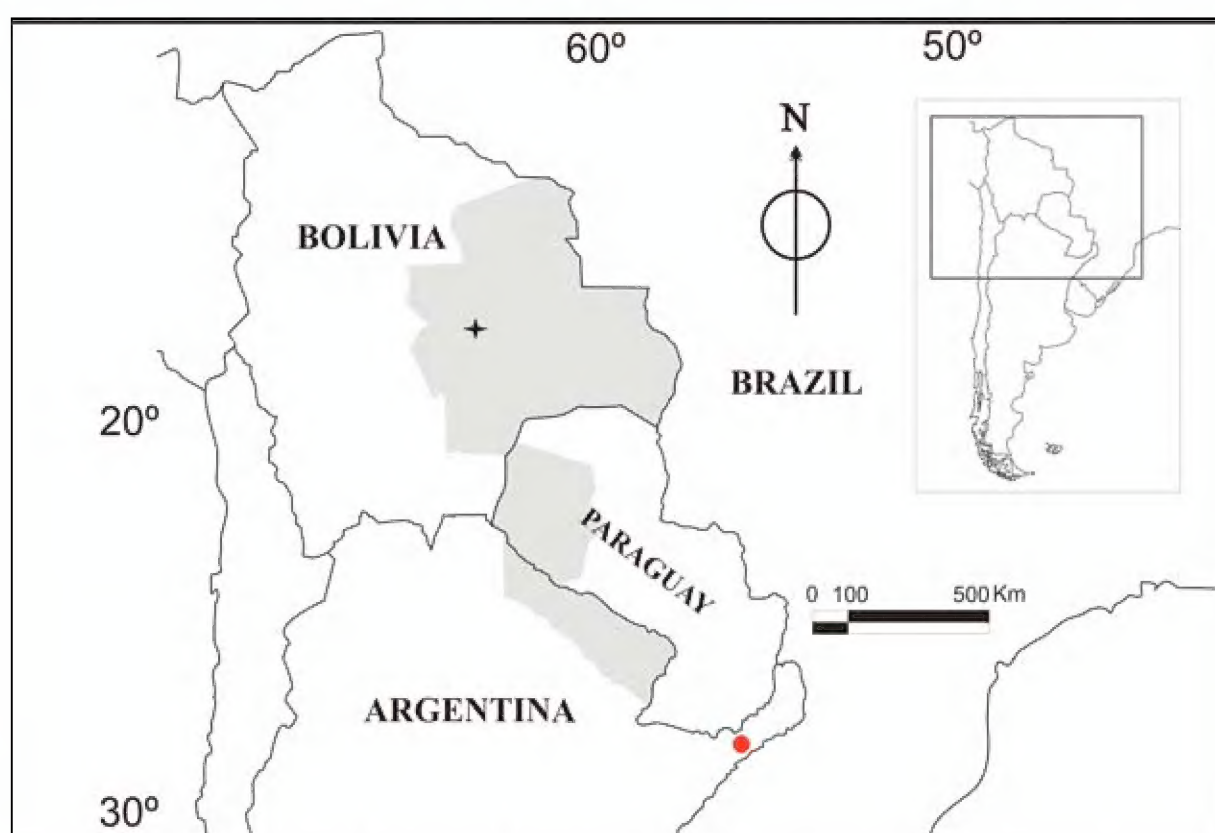
<sup>2</sup> Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET).  
Rivadavia 1917, AP 1033. Ciudad de Buenos Aires. Argentina.

The large grasshoppers subfamily Melanoplinae, tribe Dichroplini, which is wide distributed in America included the Neotropical genus *Dichroplus* Stål (Cigliano 2007; Carbonell et al. 2006). The distribution of this genus spans Argentina, Uruguay, some regions of Bolivia, Paraguay, Chile, and south of Brazil (Colombo et al. 2005). Many species of *Dichroplus*, which is the dominant genus in Argentina and other South American countries, are capable of causing considerable damage to crops and grazing (Colombo et al. 2005; Carbonell et al. 2006).

The “*Dichroplus elongatus* group” (Ronderos et al. 1968) includes many species with strong similarities in the external anatomy and color patterns. This group currently includes eight

species: *D. elongatus* Giglio-Tos 1894, *D. exilis* Giglio-Tos 1894, *D. fuscus* (Thunberg 1815), *D. patruelis* (Stål 1861), *D. paraenlogatus* Carbonell 1968, *D. misionensis* Carbonell 1968, *D. mantiqueirae* Ronderos Carbonell and Mesa 1968 and *D. intermedius* Ronderos 1976.

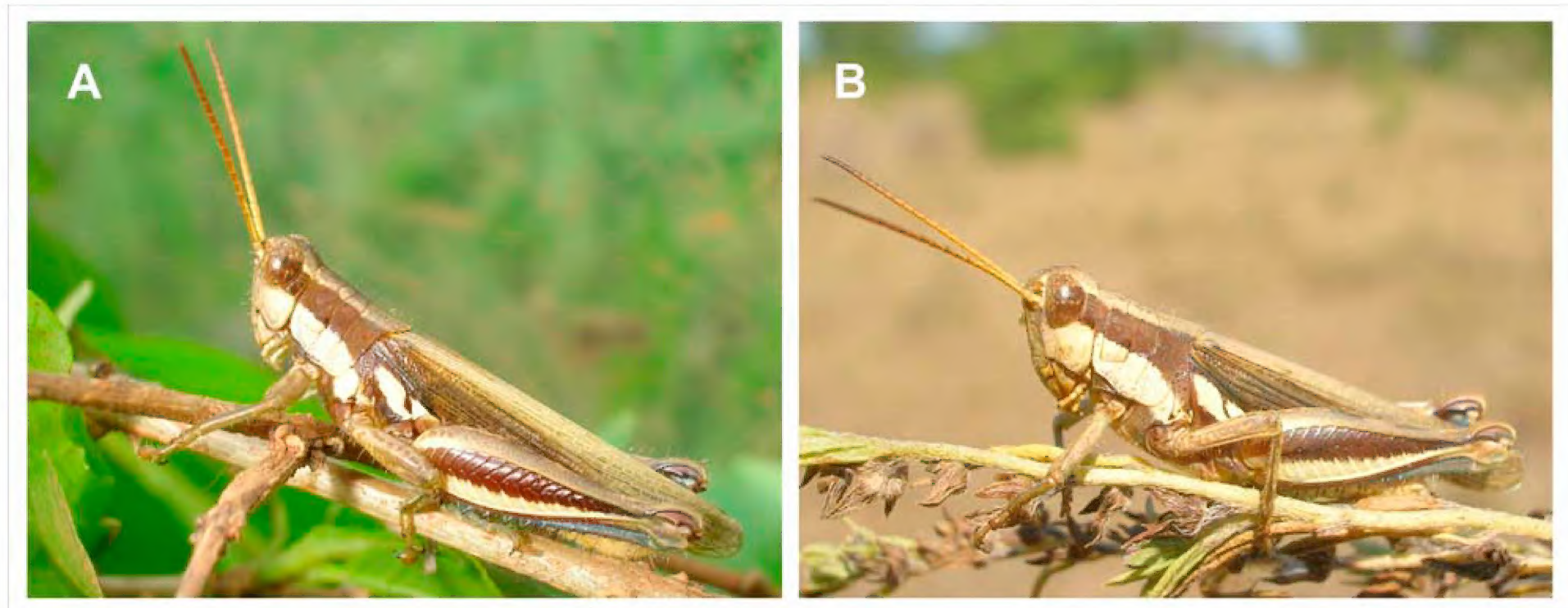
*Dichroplus intermedius* (Figure 2) is a poorly known species described in 1976 from west Bolivia; associated with the *fuscus-exilis* species subgroup by sharing several morphological and chromatic features with these species (Ronderos et al. 1968). At the moment *D. intermedius* was only known from Santa Cruz de la Sierra in Bolivia (Ronderos 1976), after mapped for northwest of Paraguay (Boquerón department) and northeast of Argentina (Formosa province) (Carbonell et al. 2006) (Figure 1).



**Figure 1.** Geographic distribution of *Dichroplus intermedius* Ronderos 1976. The star represents the type locality and the shaded zone indicates the distribution area cited by Carbonell et al. (2006). The red circle emphasizes the Misiones population and also the new record for Argentina.



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**Figure 2.** *Dichroplus intermedius* Ronderos 1976, male (A) and female (B).

Males and females specimens analyzed display a medium sized body length and an evidently postocular dark band. The outer face of the hind femora present a white band, wider at the base, in the lower area while the inner face exhibits a reddish color; the hind tibia shows a purple color. The locations of the populations analyzed during the summers of 2008 through 2009 were: Parada Leis (27°35'49" S, 55°50'05" W - 109 meters above sea level) and Estancia La Tai Milagrosa (27°40'42" S, 55°48'48" W - 140 meters above sea level), both are indicated in the map (Figure 1).

The specimens were trapped using an entomological net, were brought alive to the laboratory and kept in cages until processing. A total of fifteen individuals (nine males and six females) were studied. The scarcity of specimens is attributed by us to the marginal (thus, unstable) nature of the population. Morphometric measurements were obtained using high precision calipers (0.01 mm). The material was identified by external morphology and comparative analysis of male and female genitalia, helped by original description (Ronderos 1976) and specific literature. Voucher specimens were deposited in the *Laboratorio de Genética Evolutiva* of the *Facultad de Ciencias Exactas Químicas y Naturales, Universidad Nacional de Misiones* (see Appendix I).

We report *Dichroplus intermedius* for the first time in Misiones province, Argentina and we

provide an updated distribution map of this species including all known localities. The new record for Argentina (Misiones province, Figure 1) was based on fifteen specimens collected at 30 Km from Posadas, in Parada Leis, and 8 km before the intersection of Ruta Provincial N° 105 y Ruta Nacional N° 14, “*Estancia La Tai Milagrosa*”.

Specimens of *D. intermedius* studied herein exhibited measures of body length ranging between 22.3-26.3 mm in females and 17.9-18.9 mm in males, which is in agreement with Ronderos (1976). The area of collection above mentioned, is characterized by savannas, woodlands and Urunday (*Astronium balansae* Engl.) forest, diverse types of grasslands and scrubland, wetlands and groves of Yatay palm (*Butia yatay* (Mart.) Becc.). This region is considered a subdivision of the Interior Atlantic Forest known as Grassland District (Distrito los Campos) (Giraudó 2003). However, in Parada Leis the individuals were collected in a modified environment with *Pinus* sp. (Pinaceae), while specimens in “*Estancia La Tai Milagrosa*” were in an area with predominance of *Eryngium* sp. (Apiaceae).

In the Neotropical region the vast majority of species of the “*elongatus* group” do not exceed the 16° 32° S latitude and 40° 64° W longitude, and within this limits their distribution patterns would overlap (Ronderos 1976). The



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new report of *D. intermedius*, 450 km away to the southeast from the closest known locality recently recorded by Carbonell et al. (2006), extends the distribution range and might represent a population from the eastern limits of

their distribution. The record of the new occurrence of *D. intermedius* will contribute to enlarge its geographic distribution in Argentina and will increase its taxonomic knowledge.

**Table 1.** Measurements in mm ( $\pm$  Standard Error) of six morphometrics characters of *Dichroplus intermedius* Ronderos 1976 obtained from Misiones populations, and the total body length taken from the species original description. Total body length (TBL), hind femur length (F3L), hind tibia length (T3L), length of tegmina (TeL), mid-dorsal pronotum length (PL), and pronotum height (PH).

Locality	Sex / n	TBL	F3L	T3L	TeL	PL	PH
Misiones populations (Present work)	M / 9	18.49 $\pm$ 0.8	10.24 $\pm$ 0.4	8.77 $\pm$ 0.4	13.79 $\pm$ 0.7	3.68 $\pm$ 0.1	2.61 $\pm$ 0.2
	F / 6	23.48 $\pm$ 1.6	13.00 $\pm$ 0.9	11.69 $\pm$ 0.9	17.36 $\pm$ 0.9	4.84 $\pm$ 0.4	3.55 $\pm$ 0.3
Type locality (Ronderos, 1976)	M / 4	17.8 – 19.0	ND	ND	ND	ND	ND
	F / 5	21.6 – 26.0	ND	ND	ND	ND	ND

ND: No data available.

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Appendix 1

Voucher list: *Dichroplus intermedius*: ARGENTINA: Misiones: Departamento Capital: Parada Leis, DM0556 (Ä), DM0506 (Ä), DM0557 (Ä); Departamento San José: *Estancia "La Tai Milagrosa"*, DM0562 (Ä), DM1096 (Ä), DM1353-54 (Ä), DM1474 (Ä), DM1482-84 (Ä), DM0563 (Ä), DM1476 (Ä), DM1485-86 (Ä).